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EXAMINER	
PHAM, B	
ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.	Applicant(s)
08/868,972	AMIT GUPTA,RAPHAEL ROM
Examiner	**Group Art Unit**
Brenda Pham	2731

☒ Responsive to communication(s) filed on *filed November 10,1999*

☐ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire *THREE* month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claim

☒ Claim(s) *1-30* is/are pending in the applicat

Of the above, claim(s) _____ is/are withdrawn from consideration

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) *1-3 and 6-30* is/are rejected.

☒ Claim(s) *4 and 5* is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☒ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____ .

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

DETAILED ACTION

1. This correspondence is in response to the applicant's response filed 11/30/99. Claims 1-30 are currently pending. Detailed action is followed:

Claim Rejections - 35 U.S.C. § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1,2,6,8,18 are rejected under 35U.S.C. 103(a) as being anticipated by **Dieudonne** (U.S. Pat. No. 5,793,766) in view of **Fisk** (U.S. Pat. No. 5,274,643) and **Nishihara et al** (U.S. Pat. No. 5,469,543).

- Consider claim 1, **Dieudonne** discloses (see figure 4 & 6) a switching node, comprising: a switching matrix (AM), and a controller (CU) to control switching matrix during call setup (see col. 9, line 16-19). **Dieudonne** however, fails teach clearly the limitation of set up of a group of virtual circuits to respective one or more destinations as a virtual circuit bunch. **Fisk** on the other hand, teach this limitation (see figure 3) "Group virtual circuits to virtual paths". Therefore, it would have been obvious to those of ordinary skill in the art at the time of the invention was made to modify the switching node of **Diedonne** with the teaching providing a method for grouping virtual circuits into virtual circuit bunch as taught by **Fisk** to minimize

bandwidth consumption thus, for provide minimum cost to each pass a minimum cost to each path. **Dieudonne** again fails to explicitly teach the controller (CU) configured to set up a group of virtual circuits to respective destinations as a virtual circuit bunch. **Nishihara et al** on the other hand, teach the above limitation, "Policing circuits of a matrix array are connected column by column for transferring a virtual path identifier (VPI) in accordance with a read/write control circuit." (see Abstract). Thus, set up and tear down of the various virtual path links and virtual channels requires some form of control. Therefore, it would have been obvious to those of ordinary skill in the art at the time the invention was made to modify the switching matrix of **Dieudonne** with the teaching of providing a controller as taught by **Nishihara et al**.

- Consider claim 2, **Dieudonne et al** in view **Fisk** and further in view of **Nishihara et al** of discloses the switching node as discussed above, Dieudonne further teach a switching node is an ATM switch (see **Dieudonne** col. 1, line 25).

- Consider claims 6 and 18, **Dieudonne** in view of **Fisk** and further in view of **Nishihara et al** discloses the switching node as discussed above. **Dieudonne** furthermore shows a system and method for transfer digital information from a source to a virtual circuits of a virtual circuit bunch (see **Dieudonne** figure 1). It is well known in the art that in an ATM data networks, data is conveyed in packets called cells including a header and payload of fixed length, a header containing a virtual circuit group identifier and a virtual circuit identifier that define a logical channel between two nodes of network. Thus, to assign digital information from a source to one of a plurality of virtual circuits of a virtual circuit bunch is base on the virtual circuit identifier of each cell.

- Consider claim 8, **Dieudonne** in view of **Fisk** further in view of **Nishihara et al** discloses the switching node as discussed above. Although it fails to set forth that the virtual circuits of a virtual circuit bunch going to a single destination may be routed over different paths. Yet, it is well know in the art that data going to single destination may be routed over different paths to accomplished the shortest or best path.

4. Claims 3 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Dieudonne et al** (U.S. Pat. No. 5,793,766) in view of **Fisk** (U.S. Pat. No. 5,274,643) and further in view of **Nishihara et al** (U.S Pat. No. 5,469,543) furthermore in view of **Hiller et al** (U.S. Pat. No. 5,345,445).

- Consider claim 3, **Dieudonne** in view of **Fisk** and **Nishihara et al** discloses s system as discussed above. However, it fails to shows that the controller from one switching node sending a message to another controller specifying a destination and a respective number of virtual circuits to go to each destination. Yet, it was known in the art to incorporate method of requesting a path, as shown by **Hiller et al** (see Fig. 15, element 1200), such that all participating switching nodes are informed of the connection to route the individual message packets that follow. Thus, it would have been obvious to those of ordinary skill in the art at the time the invention was made to modify the communication system of **Dieudonne et al** in view of **Fisk** and **Nishihara et al** with the teaching of providing a method of request path as taught by **Hiller et al** to provides the processes of selecting a path and for set up communication path between nodes.

-Consider claim 20, **Dieudonne at al** in view of **Fisk** and further in view of **Nishiharra et al** discloses a system and method as discussed above, however, it does not teach a step of a controller is configured to assign digital information from a source to one of a plurality of virtual circuits of a virtual circuit bunch in accordance with a user specified policy. **Hiller et al** again, teach the above limitation (see figure 16, col. 11, line 9-15), to maximize routing and loading efficiency by splitting virtual paths into balanced sub-paths within available resources.

5. Claims 7 and 19 rejected under 35 U.S.C. 103(a) as being anticipated by **Dieudonne et al** (U.S. Pat. No. 5,793,766) in view of **Fisk** (U.S. Pat. No. 5,274,643) and further in view of **Nishiharra et al** (U.S. Pat. No. 5,469,543) furthermore in view of **Subramanian et al** (U.S. Pat. No. 5,519,707).

-Consider claims 7 and 19, **Dieudonne et al** in view of **Fisk** and **Nishiharra et al** discloses the switching node and method as discussed above, but it does not shows that the assignment of digital information from a source to one virtual circuits of a virtual circuit bunch is done without assigning the virtual circuits to a connection. **Subramanian et al** on the other hand, shows the above limitation, "The disclosed method and apparatus provides for efficient communication of service requests and service grants without requirement to establish new communications paths between the individual switches and the central service provider for each request" (see abstract). Thus, it would have been obvious to those of ordinary skill in the art at the time of the invention was made to modify the system of **Dieudonne et al** in view of **Nishihara et al** with a method of **Subramanian et al**.

6. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Dieudonne et al** (U.S. Pat. No. 5,793,766) in view of **Fisk** (U.S. Pat. No. 5,274,643) and **Nishiharra et al** and further in view of **Suzuki** (U.S. Pat. No.4,884,263).

- Consider claim 9, **Dieudonne et al** in view of **Fisk** and **Nishiharra et al** discloses a system as discussed above, however, it fails to teaches the retransmit digital data from an assigned virtual circuit identifier to an alternate VCI of the same or different port going to the same destination. **Suzuki**, on the other hand, discloses the steps of re-establish a new virtual circuit through the network in the event of a trouble or heavy traffic in the virtual circuit (see col. 1 line 33 - line 37). Thus, it would have been obvious to those of ordinary skill in the art at the time the invention was made to modify the switching system of **Dieudonne et al** in view of **Fisk** and further in view of **Nishiharra et al** with the teaching of providing a method of retransmit digital data taught by **Suzuki** to re-routing the message packets to the second logical channel when the abnormal condition is detected in the first virtual circuit.

7. Claims 10, 21 and 22 are rejected under 35 U.S.C. 103(a) as being anticipated by **Suzuki** in view of **Subramanian et al** (U.S. Pat. No. 5,519,707).

- Consider claim 10, **Suzuki** discloses a computer apparatus for connection to a switching node comprising (see Fig.1&4): a bus **5**; a input device, connected to a bus **5**; a communications interface connected to bus **52**; a processor **50** connected to bus. **Suzuki** however, fails to teach that processor configured to generate a single request to switching node to establish a plurality of virtual circuits to respective destinations as a virtual circuit bunch. **Subramanian et al** on the other hand, discloses the limitation as set forth, (see figure 4C, col 4 line 59-61 and abstract)

"The disclosed method and apparatus provides for efficient communication of service requests and service grants without requirement to establish new communication paths between the individual switches and the central service provider for each request". Thus, it would have been obvious to those of ordinary skill in the art at the time the invention was made to modify the computer apparatus of **Suzuki** with method as taught by **Subramanian et al** so to enables groups of virtual circuits to be established between nodes.

- Consider claim 21, **Suzuki** in view of **Subramanian et al** discloses a system for the transmission of digital communications, comprising (see Fig. 1): a user communication devices **10, 11,12**; a partially interconnected switching nodes **14,15,16**, each node serviced by a node controller (see Fig. 5). **Suzuki** however, fails to shows a node controller is configured to set up a group of virtual circuits to respective destination as a virtual circuit bunch. **Subramanian et al**, further discloses the above limitation (see col. 8, line 1-5) "network clients, such as client 214, can request the supervisor 202 to set-up and tear down virtual paths/virtual channels over a signaling channel". Therefore, it would have been obvious to those of ordinary skill in the art at the time the invention was made to modify a system of **Suzuki** with the teaching of providing step for controller to set up virtual paths as taught by **Subramanian et al** to provide a faster connect service in a digital switching network.

- Consider claim 22, **Suzuki** in view of **Subramanian et al** discloses a system as discussed above. **Subramanian et al** further teach a virtual circuit from a user at one node is connected to a user at a destination node using a virtual circuit from virtual circuit bunch (see col. 7, line 76) "signaling services allowing each client to communicate with the supervisor 202

to establish user-to-user connectivity (e.g., call set-up and tear-down)". Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the system such as set forth in claim 22 using the teaching of **Suzuki** in view of **Subramanian et al** to establish a communications link between users.

8. Claim 11,12,13,16,17 are rejected under 35 U.S.C. 103(a) as being anticipated by **Suzuki** in view of **Subramanian et al** (U.S. Pat. No. 5,519,707) and further in view of **Hiller et al** (U.S. Pat. No. 5,345,445).

-Consider claim 11, **Suzuki** in view of **Subramanian et al** discloses a system and method as discussed above, however, it does not teach a method of allocating virtual circuits. **Hiller et al,** on the other hand, teach the above limitation, (see figure 16, element 1300). Thus, it would have been obvious to those of ordinary skill in the art at the time the invention was made to modify the information communication system of **Suzuki** in view of **Subramanian et al** with the teaching of providing a method of allocating virtual circuits as taught by **Hiller et al** so that if no paths are available on active virtual circuits for the path request, then a request can be made to allocate an additional virtual circuit.

-Consider claim 12, **Suzuki** in view of **Subramanian et al** and further in view of **Hiller et al** discloses a system and method as discussed above. Although it does not includes setting up switching tables, it was well known that when a node has acknowledged the request for setting up a communication path, it is necessary to rewrite the interconnection switching table, called VPI (virtual path identifier) table, that is provided in each node for specifying the cross-connection between incoming transmission paths and outgoing transmission paths so that the

information can transmitted from an end node of the path reaches the other end node. According to the CCITT protocol, there are in all 4096 virtual path identifiers in each link, and the VPI table therefore contains a matrix for cross-connecting 4096 virtual path identifiers. Therefore, modify the method of **Suzuki** in view of **Subramanian** and **Hiller** to includes setting up switching table would have been obvious to those of ordinary skill in the art.

-Consider claim 13, **Suzuki** in view of **Subramanian et al** further in view of **Hiller et al** discloses a system as discussed above. **Hiller et al** further disclose a method for request a plurality of destination (see figure 15, element 1200). Therefore, it would have been obvious to those of ordinary skill in the art at the time the invention was made to modify the method of request a plurality of destinations of **Suzuki** in view of **Subramanian et al** with the teaching of **Hiller et al**.

-Consider claim 16, **Suzuki** in view of **Subramanian et al** further in view of **Hiller et al** discloses a system and method as discussed above. **Hiller et al** further shows the steps of establishing an end to end virtual circuit using one of virtual circuit of a virtual circuit bunch (see figure 15, element 1207 -1217). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the method as set forth in claim 16 using **Suzuki** in view of **Subramanian et al** further in view of **Hiller et al** to establish a communications link between users in a virtual network system.

-Consider claim 17, **Suzuki** in view of **Subramanian et al** and further in view of **Hiller et al** discloses a method as discussed above. The method above further includes the step of identifying virtual circuits at a node going to a common destination node (see **Subramanian** col.

2, line 6-7). It was well known that for routing of the cell, virtual circuits of the cell at a node going to a common destination node are defined by their virtual circuit identifier (VCI) and a virtual path identifier (VPI). Thus, allocating virtual circuits includes step of identifying virtual circuits would have been obvious to one skilled in the art . **Subramanian** further shows step of aggregating those virtual circuit into a virtual circuit bunch (see col. 5, line 33-35) "group several virtual channel into one so-called virtual path". Therefore, it would have been obvious to those of ordinary skill in the art at the time of the invention was made to modify a method of allocating virtual circuits in a switching system as set forth in claim 17.

9. Claims 14,15,24 and 26 are rejected under 35 U.S.C. 103(a) as being anticipated by **Suzuki** in view of **Subramanian et al** (U.S. Pat. No. 5,519,707) further in view of **Hiller et al** (U.S. Pat. No. 5,345,445) and furthermore in view of **Fisk** (U.S. Pat. No. 5,274,643).

-Consider claim 14, **Suzuki** in view of **Subramanian et al** further in view of **Hiller et al** discloses a system and method as discussed above. However, it does not explicitly specifies the number of virtual circuits to be established to each destination. **Fisk,** on the other hand, set forth the above limitation (see figure 6, col. 5, line 58-70) "If the total number of virtual circuit members of a virtual path is equal to a maximum group member number (VPM_MAX), the virtual path is packed or full and a number virtual path is started". Thus, it is clearly shows by **Fisk** that the number of virtual circuits to be established at each destination so that the number of virtual circuits can be compared to the predetermined maximum group number, to determined if it can be grouped with the present virtual path. Therefore, it would have been obvious to those of

ordinary skill in the art at the time of the invention was made to modify the method as discussed above includes the request specifies the number of virtual circuits as set forth by **Fish**.

-Consider claim 15, **Suzuki** in view of **Subramanian et al** and further in view of **Hiller et al** discloses a system as discussed above, however, it fails to teach the steps for specifies the level of service to be provided by one or more virtual circuit. **Fisk**, on the other hand, teach the above limitation (see col. 5 line 41-line 55) "in order for the connection to be placed in the virtual path, the point to point connection of the virtual path leader must match, the virtual circuit must have the same routing restrictions and the same class of service". Therefore, it would have been obvious to those of ordinary skill in the art at the time of the invention was made to modify the system of Suzuki in view of Subramanian et al with the teaching of **Fisk**.

10. Claim 24 is rejected under 35 U.S.C. 103(a) as being anticipated by **Suzuki** in view of **Subramanian et al** (U.S. Pat. No. 5,519,707) and further in view of **Fisk** (U.S. Pat. No. 5,274,643).

-Consider claim 24, **Suzuki** in view of **Subramanian et al** discloses a system as discussed above, however, it does not explicitly teach the step of aggregating those virtual circuits into a virtual circuit bunch. **Fisk** on the other hand, teach the above limitation (see figure 3, element 50) "group virtual circuits to virtual paths". Thus, it would have been obvious to those of ordinary skill in the art at the time the invention was made to modify the system of **Suzuki** in view of **Subramanian et al** with the teaching of providing the step for aggregating virtual circuits into a virtual circuit bunch as taught by **Fisk** so that to provide minimum cost to each pass through a topology design.

11. Claim 26 is rejected under 35 U.S.C. 103(a) as being anticipated by **Suzuki** in view of **Subramanian et al** (U.S. Pat. No. 5,519,707) and further in view of **Hiller et al** (U.S. Pat. No. 5,345,445).

-Consider claim 26, **Suzuki** in view of **Subramanian et al** discloses a system as discussed above, however, it does not teach the limitation for allocating a virtual circuit. **Hiller et al**, on the other hand, shows the above limitation (see figure 15, element 1212 and figure 15). Thus, it would have been obvious to those of ordinary skill in the art at the time the invention was made to modify the system of **Suzuki** in view of **Subramanian et al** with the teaching of providing the instructions for allocating a virtual circuit as taught by **Hiller et al** so that if no paths are available on active virtual circuits for the path request, then a request is made to allocate an additional virtual circuit.

-Claim 18 & 19 are rejected for the same reasons as set forth in claims 6 & 7 respectively.

-Claim 23 is rejected for the same reasons as set forth in claim 21.

-Claim 27-30 are rejected for the same reasons as set forth in claim 23-26, respectively.

Allowable Subject Matter

12. Claims 4&5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

13. Applicant's arguments with respect to claims 1-30 have been considered.

-Claims 1-3,6-9,18-20,25 and 29 have been considered but are moot in view of the new ground(s) of rejection.

-Claims 10-17,21-30 have been fully considered but they are not persuasive.

-With respect to claims 10, 21 and 22, the applicant argued that neither Suzuki or Subramanian teach or suggested "a plurality of virtual circuits to one or more destinations as a virtual circuit bunch" as recited in claims 10, 21, and 22. Examiner respectfully disagrees with the applicant's argument because Subramanian et al indeed taught this arguable feature (see figure 4C) "Virtual Path". It is well known that a virtual path is simply a collection of channels (virtual channel) associated with the same user endpoint. A virtual channel is a unidirectional virtual circuit (VC) associated with a particular user". Thus, virtual circuit path is a collection of virtual circuits which indeed a virtual circuit bunch. Therefore, claims 10, 21 and 22 remain rejected.

-Claims 11-13 and 16-17 remain rejected for the reasons as set forth above.

-With respect to claims the limitations of claims 14-15, 24 and 26, the applicant argued that neither Suzuki or Subrananian or Hiller or Fisk teach or suggest "a virtual circuit bunch". Examiner respectfully disagrees with applicant's argument because at least Fisk taught these limitations (see figure 3, element 50) "group virtual circuits to virtual paths". Applicant again argued that virtual circuit paths in Fisk's method are different than virtual circuit bunches as recite in claim. Applicant argued such as "virtual circuits are grouped into virtual paths...Virtual

paths are known in the prior art but are different than virtual circuit bunches...For example, virtual paths are defined between two nodes and do not allow for more than one destination as does a virtual circuit bunch". Examiner respectfully disagrees with the applicant's argument because Fisk indeed taught this limitation (see figure 7, element 440) "A virtual path can be split if both end nodes of the virtual path has resources to add another VP and there is more than one virtual circuit in the VP. This step shows by Fisk that virtual paths can plits into different virtual path which indeed lead to different destinations. Therefore, claims 14-15,24 and 26 remain rejected.

-Claim 18 & 19 are rejected for the same reasons as set forth in claims 6 & 7 respectively.

-Claim 23 is rejected for the same reasons as set forth in claim 21.

-Claim 25 is rejected for the same reasons as set forth in claim 6.

-Claim 27-30 are rejected for the same reasons as set forth in claim 23-26, respectively.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Pat. No. 5,673,264 of Hamaguchi discloses a information distribution system.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brenda Pham whose telephone number is (703) 308-0148. The examiner can normally be reached on Monday-Thursday from 9:00 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham, can be reached on (703) 305-4378.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-4900.

Brenda Pham
December 15, 1999

CHI H. PHAM
SUPERVISORY PATENT EXAMINER
GROUP 2700
12/17/99